

**Response ID ANON-SEAE-SXN4-B**

**Submitted to Standard for Limiting Exposure to Radiofrequency Fields – 100 KHz to 300 GHz (RPS S-1)**

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## **Your Details**

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### **3 What is your organisation?**

**Organisation:**

Stop Smart Meters Australia Inc

### **4 Is your feedback in a personal capacity or as a representative?**

Representative

### **5 What category do you belong?**

Non-Government Organisation

### **6 Do you agree to having your comments published online once the consultation process is complete?**

Yes

## **Specific Comments**

### **7 Section 1. Introduction**

**Comments:**

Stop Smart Meters Australia (SSMA) assumes that line 43, which is prior to this Section, will be amended such that the 'k' in kHz in the title of the Standard is in lowercase. This issue should also be corrected in the Standard's footer.

Line 194 requires additional explanatory information after the following sentence: "The report concluded that the science behind the ARPANSA RF Standard remains sound and that the exposure limits in the Standard continue to provide a high degree of protection against the known health effects of exposure to RF".

In order to more accurately reflect current expert opinion, SSMA recommends that this sentence is added: “However, subsequent independent review of the scientific evidence that was available to ARPANSA and its expert panel for this report has demonstrated that it provided a poor representation of the state of the science within the specified time frame of 2000–2014” (Leach & Weller 2017, p. 12).

Line 203 concludes, following the claim that it is Australian government policy to implement international best practice and to adopt international standards where they exist and can be applied to the Australian regulatory environment, that the standard is based on the ICNIRP (2020) recommendations for RF fields. As ICNIRP’s guidelines patently do not represent world best practice, SSMA recommends that the draft standard does not reference this document. SSMA considers it critical that Australia’s Standard for RF provides a high degree of protection for all Australians against adverse health effects of RF exposure; this is currently not the case. A good starting point for informing such a standard would be the IGNIR International Guidelines on Non-Ionising Radiation (IGNIR 2018, p. 3–6), the Standard for Building Biology Testing Methods SBM-2015 (Institut für Baubiologie + Nachhaltigkeit, p. 1–2), the Austrian Medical Association guidelines (Austrian Medical Association 2012, p. 9) and the BioInitiative 2012 report recommendations for radiofrequency radiation exposure (BioInitiative Working Group 2012, pp. 1517–1526).

Text in lines 224–226 stipulates that the Standard does not apply to patients exposed to RF fields during medical exposure, but does apply to persons operating the radiating equipment and others who are in the vicinity during the procedure. This information in relation to the other people who are in the vicinity during the procedure appears to be at odds with the explanation in the Glossary, which stipulates that medical exposure also applies to carers and comforters of patients (lines 1062–1063).

Line 236 states that “The principles for protection against adverse health effects of exposure to RF fields in this Standard are based on the ICNIRP principles for non-ionising radiation protection”. As previously flagged, a large cohort of experts consider that the ICNIRP principles are flawed and do not provide protection against long-term exposure and low-intensity effects of exposure to RF fields (EMF Scientific Appeal 2000). In consequence, the Standard should not be based on ICNIRP guidelines as these are viewed as being insufficient to protect public health.

## REFERENCES

Austrian Medical Association 2012, Guideline of the Austrian Medical Association for the diagnosis and treatment of EMF-related health problems and illnesses (EMF syndrome), Consensus paper of the EMF Working Group (AG-EMF), Available: <https://www.magdahavas.com/wp-content/uploads/2012/06/Austrian-EMF-Guidelines-2012.pdf>

BioInitiative Working Group 2012, Key Scientific Evidence and Public Health Policy Recommendations, Section 17, C. Sage and D. O. Carpenter, BioInitiative Report: A Rationale

for a Biologically-based Public Exposure Standard for Electromagnetic Radiation, Available: [www.bioinitiative.org](http://www.bioinitiative.org)

EMF Scientist Appeal 2020, International Appeal: Scientists call for Protection from Non-ionizing Electromagnetic Field Exposure, Available: <https://www.emfscientist.org/>

IGNIR 2018, International Guidelines on Non-Ionising Radiation, Available: <https://ignir.org/>

Institut für Baubiologie + Nachhaltigkeit 2015, Building Biology Evaluation Guidelines for Sleeping Areas, Supplement to the Standard of Building Biology Testing Methods SBM-2015, Available: <https://buildingbiology.com/site/downloads/richtwerte-2015-englisch.pdf>

Leach & Weller 2017, Conference Paper, Radio Frequency Exposure Risk Assessment and Communication: Critique of ARPANSA TR-164 Report. Do we have a problem?, Available: [https://www.researchgate.net/publication/325169912\\_Radio\\_Frequency\\_Exposure\\_Risk\\_Assessment\\_and\\_Communication\\_Critique\\_of\\_ARPANSA\\_TR-164\\_Report\\_Do\\_we\\_have\\_a\\_problem/link/5f5ab2d392851c07895d3609/download](https://www.researchgate.net/publication/325169912_Radio_Frequency_Exposure_Risk_Assessment_and_Communication_Critique_of_ARPANSA_TR-164_Report_Do_we_have_a_problem/link/5f5ab2d392851c07895d3609/download)

## **8 Section 2. Basic restrictions and reference levels for exposure to RF fields between 100 kHz and 300 GHz**

### **Comments:**

There is an inference in line 294 that compliance with ‘basic restrictions’ will provide protection against established health effects. However, the only established health effects that the draft Standard considers are electrostimulation of excitable tissue (line 312), whole-body heat stress (line 315), excessive localised temperature rise in tissue (line 317) and rapid temperature elevation (line 318).

SSMA recommends that if ARPANSA is not prepared to implement a more protective standard then it has a duty of care to rephrase lines 293–295 such that a transparent and truthful assessment of the Standard’s aims and limitations is provided. For instance, this segment might read “Mandatory limits on exposure to RF fields are based on established health effects due to heating and are referred to as ‘basic restrictions’. The specific effects which this Standard provides protection for are outlined in Section 2.3. Compliance with these basic restrictions does not provide protection for other effects, such as: carcinogenicity (brain tumours/glioma, breast cancer, acoustic neuromas, leukaemia, parotid gland tumours); genotoxicity (DNA damage, DNA repair inhibition, chromatin structure); mutagenicity, teratogenicity; neurodegenerative diseases (Alzheimer’s Disease, Amyotrophic Lateral Sclerosis); neurobehavioral problems, autism, reproductive problems, pregnancy outcomes, excessive reactive oxygen species/oxidative stress, inflammation, apoptosis, blood-brain barrier disruption, pineal gland/melatonin production, sleep disturbance, headache, irritability, fatigue, concentration difficulties, depression, dizziness, tinnitus, burning and flushed skin, digestive disturbance, tremor, cardiac irregularities; adverse impacts on the neural, circulatory, immune, endocrine, and skeletal systems” (Kostoff et al. 2020, p. 37).

ARPANSA has made an assumption that ICNIRP times for averaging exposure (6 minutes/30 minutes) have scientific validity. This supposition appears to be questionable. Pulsed RF is more biologically active than non-pulsed RF radiation (Panagopoulos, Johansson & Carlo 2015, p. 2). Even short bursts may lead to permanent tissue damage (Neufeld & Kuster 2018, p. 710). SSMA considers that basing exposure restrictions on averaging intervals, which thereby smooths out peaks, suffers from the inherent flaw of averaging – resulting in a systemic problem with the draft RF Standard.

## REFERENCES

Kostoff, R. N., Heroux P., Aschner M. & Tsatsakis, A. 2020, Adverse health effects of 5G mobile networking technology under real-life conditions, *Toxicol Lett.* 2020 May 1;323:35-40, doi: 10.1016/j.toxlet.2020.01.020, Epub 2020 Jan 25, PMID: 31991167, Available: <https://pubmed.ncbi.nlm.nih.gov/31991167/>

Neufeld, E. & Kuster, N. 2018, Systematic Derivation of Safety Limits for Time-Varying 5G Radiofrequency Exposure Based on Analytical Models and Thermal Dose, *Health Physics*, Dec 2018, Vol 115, Issue 6, p. 705-711, doi: 10.1097/HP.0000000000000930, Available: [https://journals.lww.com/health-physics/Abstract/2018/12000/Systematic\\_Derivation\\_of\\_Safety\\_Limits\\_for.17.aspx](https://journals.lww.com/health-physics/Abstract/2018/12000/Systematic_Derivation_of_Safety_Limits_for.17.aspx)

Panagopoulos D.J., Johansson O. & Carlo G.L. 2015, Real versus simulated mobile phone exposures in experimental studies, *BioMed Research International* 2015, *Biomed Res Int.* 607053. doi: 10.1155/2015/607053 (2015), Available: <https://pubmed.ncbi.nlm.nih.gov/26346766/>

### **9 Section 3. Simultaneous exposure to multiple frequency fields**

**Comments:**

### **10 Section 4. Verification of compliance with the basic restrictions and reference levels**

**Comments:**

### **11 Section 5. Protection – occupational and general public exposure**

**Comments:**

Provisions in Section 5.5.1, Occupational Exposure, rest on the assumption that the designated ‘responsible’ person is able to ascertain areas that are above occupational exposure limits and thereby take appropriate measures (signage, education, etc.). However, due to the complexity of the Standard, this may be an unwarranted assumption. Similarly, expertise in ascertaining the general public exposure limits is required in instances where an

occupationally exposed person has a medical device susceptible to RF interference, a metallic implant, or is pregnant. It is likely that a simplified Standard would result in better outcomes, given the increased likelihood that the responsible person would understand their obligations.

Line 822 has a superfluous space before the full-stop.

Protection of the general public should require facility and equipment owners to take effective measures to reduce public exposure on the basis of the precautionary principle. Other countries and jurisdictions have seen fit to introduce a variety of measures to achieve this aim. For instance, comparing ARPANSA's limits to figures reported on in 2018: the limit in Flanders was 7% of what is allowed in Australia for electrical field strength per antenna for telecommunication in places such as homes, schools, rest homes and nurseries; in the Brussels Region total exposure for power density was limited to 2% in residences; in Wallonia electrical field strength per antenna in residences was set at 7% for 900 MHz; in Bulgaria fixed limits for power density were 2% at 900 MHz and less than 2% for higher frequencies; in Croatia 'sensitive areas' (homes, offices, schools, kindergartens, maternity wards, hospitals, facilities for the elderly and disabled and tourist accommodation) the limit was 16% for power density; in Greece the limit was 60% for power density when antenna stations are located closer than 300 metres from the property boundaries of schools, kindergartens, hospitals or facilities for the elderly (and mobile phone antenna stations are not allowed within these facilities), the limit in Italy was 2% for the power density at 900 MHz in homes, schools, playgrounds and places where people might stay for more than four hours; in Lithuania power density was set at 10% for 900 MHz; in Luxemburg a 7% limit at 900 MHz was set for the electrical field strength per radiating element for antennas with a power of 100 W or higher; in Poland publicly-accessible places were limited to a 2% power density at 900 MHz; in China at 900 MHz the power density was set at 9%; in India the limit for EMF from telecommunication base stations was 10% for power density; in Russia the power density limit was 2% in and around residential buildings and inside public and industrial premises; and in Switzerland a limit of 10% for electric field strength applied to 'sensitive-use' locations, such as apartments, schools and children's playgrounds, near mobile phone antennae, broadcasting and radar installations (Stam 2018, pp. 9–11).

## REFERENCE

Stam, R. 2018, Comparison of international policies on electromagnetic fields (power frequency and radiofrequency fields), National Institute for Public Health and the Environment, RIVM (The Netherlands), Available: <https://www.rivm.nl/sites/default/files/2018-11/Comparison%20of%20international%20policies%20on%20electromagnetic%20fields%202018.pdf>

## 12 Schedules 1, 2 and 3

## **Comments:**

SSMA recommends that the Look-up Tables set out kHz with a lowercase k.

## **13 Appendices 1 and 2**

### **Comments:**

## **14 Glossary**

### **Comments:**

## **General Comments**

### **15 General comments**

#### **Comments:**

SSMA recommends that ARPANSA returns to the drawing board in respect of the new RPS S-1.

The ICNIRP (2020) principles for non-ionising radiation are considered by many scientists to be flawed and not a suitable basis for a RF standard. The majority of scientific papers examining outcomes in the 300 MHz–3 GHz range report biological effects (Leach, Weller & Redmayne 2018, p. 1). An increasing number of Australians are suffering the consequences of a standard that is focused on preventing thermal effects to tissue and which ignores biological effects. A number of our 600+ members and 6000+ website followers have reported distressing symptoms following exposure to artificial electromagnetic radiation (EMR). SSMA is in receipt of in excess of 400 (unsolicited) reports alleging a variety of adverse symptoms, some of which have been life-threatening, as a result of exposure to electricity smart meter emissions. Smart meters, although a particularly problematic source of EMF (Lamech 2014, p. 28), are one of only many modern sources of pulsed EMF; the individuals who have made these reports therefore represent the tip of the iceberg in relation to how many Australians may have been adversely affected by electro-pollution.

SSMA notes that even where countries and jurisdictions have seen fit to adopt ICNIRP's guidelines, in many instances they have only done so following the adoption of significant reductions in ICNIRP's limits. This has resulted in guidelines or standards which are ten or even hundreds of times more protective than Australia's RF Standard (Jamieson 2014 p. 4, Stam 2018, pp. 9–11). Over 40% of the world's population has the benefit of substantially more rigorous protection than what is afforded Australians (Jamieson 2014, p. 4).

It should also be recognised that ARPANSA's association with ICNIRP, and its reliance on ICNIRP for providing it with the basis of a RF standard, immediately flags concern in regard to the acumen and competence of ARPANSA. Endorsement of 'science-based' advice from

ICNIRP appears to be analogous to giving credence to a quack's directives to gullible followers. ICNIRP is a small, insular private organisation devoid of accountability. It is regarded as having strong industry ties and a lack of expertise in biomedical and health sciences. Merely being a member of ICNIRP may be a conflict of interest in expressing opinions on health risks from EMF (Hardell 2017, pp. 407–408). A recent investigative report concluded that ICNIRP could not be relied on for providing independent scientific advice on non-ionising radiation (van Scharen 2020, p. 49).

It is also unacceptable that the working group for the draft standard did not include community and union representatives (lines 1171–1173). SSMA views the inclusion of a representative from the Mobile Carriers Forum on the working group (line 1173) as a breach of ethics; this is akin to giving a tobacco company the opportunity to influence tobacco control legislation and suggests that ARPANSA is focused on facilitating industry interests, rather than on safeguarding public health, similarly to what has occurred within the FCC (Alster 2015, Cha. 1, p. 2).

In view of the rapidly expanding body of evidence demonstrating harm as a result of exposure to non-ionising electromagnetic radiation below the threshold for causing heating effects, SSMA considers that ARPANSA has a duty of care to formulate a standard for RF that is demonstrably precautionary. The draft Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz does not fulfil this criterion.

## REFERENCES

Alster, N. 2015, *Captured Agency: How the Federal Communications Commission Is Dominated by the Industries It Presumably Regulates*, Edmond J. Safra Center for Ethics, Harvard University, Available: [https://ethics.harvard.edu/files/center-for-ethics/files/capturedagency\\_alster.pdf](https://ethics.harvard.edu/files/center-for-ethics/files/capturedagency_alster.pdf)

Hardell, L. 2017, *World Health Organization, radiofrequency radiation and health - a hard nut to crack (Review)*, *Int J Oncol.* 2017 Aug;51(2):405-413, doi: 10.3892/ijo.2017.4046, Epub 2017 Jun 21, PMID: 28656257; PMCID: PMC5504984, Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5504984/pdf/ijo-51-02-0405.pdf>

Jamieson, I. 2014, *RF / Microwave Radiation Risk Awareness (Abridged Version)*, Available: [http://www.eesc.europa.eu/resources/docs/emf\\_report\\_-provided-by-dr-jamieson.pdf](http://www.eesc.europa.eu/resources/docs/emf_report_-provided-by-dr-jamieson.pdf)

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[https://www.researchgate.net/publication/325627752\\_A\\_novel\\_database\\_of\\_bio-effects\\_from\\_non-ionizing\\_radiation](https://www.researchgate.net/publication/325627752_A_novel_database_of_bio-effects_from_non-ionizing_radiation)

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van Scharen, H. 2020, The International Commission on Non-Ionizing Radiation Protection: Conflicts of interest, corporate interests and the push for 5G, report commissioned, coordinated and published by M. Rivasi MEP and Dr K. Buchner MEP, Available:  
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